

Applicant: Petteri Lannes et al.
PCT App. No.: PCT/FI2005/050039
Preliminary Amendment filed August 25, 2006

Claim Listing

1–20.(cancelled)

21. (new) A method in the maintenance of machines, processes, automation systems and equipment relating to papermaking, wherein a teleservice connection based on a data communication link is arranged between a production plant and a teleservice center, and wherein the machine relating to papermaking is located at a production plant which is equipped with a plant data system, and wherein the condition, state and/or performance of the machine units and/or processes and/or automation systems of a production line at the production plant are monitored by monitoring systems in order to recognize emergency situations,

in which method in a recognized emergency situation an automatic service process is started based on signals given by said monitoring systems, and wherein the method functions spatially, whereby the method ensures that all stages will be carried out and that all messages will reach their destination.

22. The method of claim 21 wherein the monitoring systems comprise condition monitoring systems and/or performance measuring systems and/or quality assessment systems and diagnostic units.

23. (new) The method of claim 21, wherein said automatic service process is started when the value of measured data collected from the monitoring systems exceeds or falls shorts of an established limit value.

24. (new) The method of claim 21, wherein based on said automatic service process instructions for action and/or an action are formed automatically in order to remedy failure situations at the production plant.

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25. The method of claim 21, wherein the automatic service process comprises stages, in which

for magnitudes measured/determined by the monitoring systems limit values are established, and any exceeding or falling short of these will cause a triggering signal;

in the production plant a data collecting unit is arranged, which receives the signals/measured data arriving from the monitoring systems and stores them in a database;

a message relay system is arranged at the production plant to receive the signals arriving from the data-collecting unit, which signals comprise triggering signals and measured data;

based on said signals and/or said triggering signals a failure situation is defined as having occurred;

a data communication link is arranged between the message relay system and the teleservice center;

in a failure situation, an automatic failure report is transmitted to the teleservice center by using said data communication link;

the failure situation is analyzed automatically at the teleservice center; and

based on the analysis, instructions for action are generated automatically to remedy the failure situation.

26. (new) The method of claim 21, wherein a data communication link is arranged between the message relay system and the plant data system.

27. (new) The method of claim 21, wherein at the stage where the failure situation is analyzed, data measured earlier on the same or a similar object is utilized in the analysis.

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28. (new) The method of claim 24, wherein in the instructions for action an instruction is proposed concerning adjustment of operating parameters of the machine.

29. (new) The method of claim 28, wherein the operating parameters of the machine are adjusted in such a way that the service action can be put off.

30. (new) The method of claim 28, wherein the operating parameters of the machine are adjusted in such a way that the service action can be put off until the following regular service.

31. (new) The method of claim 24, wherein the automatically generated instructions for action are delivered as an automatic message to service staff of the teleservice center and/or to service staff of the production plant.

32. (new) The method of claim 24, wherein said automatically generated instructions for action and/or said action for remedying failure situations at the production plant comprise a control action, by which parameters of the production plant's machine unit are adjusted automatically.

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33. (new) A system in the maintenance of machines, processes, automation systems and equipment relating to papermaking, where the machine relating to papermaking is located at a production plant which is equipped with a plant data system, and wherein a teleservice connection based on a data communication link is arranged between the production plant and the teleservice center, and where the condition, state and/or performance of machine units and/or processes and/or automation systems of a production line at the production plant are monitored by monitoring systems, in order to recognize emergency situations, which system comprises means for providing an automatic service process, wherein the system is spatial whereby the system functions in such a way that all messages will reach their destination and all defined stages will be carried out.

34. (new) The system of claim 33 wherein the monitoring systems comprise condition monitoring systems and/or performance measuring systems and/or quality assessment systems and diagnostic units.

35. (new) The system of claim 33, further comprising means for providing automatically generated instructions for action.

36. (new) The system of claim 33 further comprising:
means for collecting automatic measured data from the machine units of the
production plant;
means for transmitting the measured data from the production plant to a teleservice
center;
means for analyzing the measured data at the teleservice center;
means for generating automatic instructions for action at the teleservice center; and
means for transmitting the automatic instructions for action to inform service staff.

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37. (new) The system of claim 33 further comprising:
a data-collecting unit arranged to collect and store data arriving from the monitoring systems; and
a message relay system adapted to receive triggering signals and data arriving from the data-collecting unit and/or itself to form a triggering signal.
38. (new) The system of claim 37 wherein a data communication link is arranged between the message relay system and the plant data system.
39. (new) The system of claim 37 wherein the message relay system is arranged to form and transmit messages in a structured form.
40. (new) The system of claim 39 where the message relay system is arranged to transmit messages in XML form.
41. (new) The system of claim 39 wherein the messages formed by the message relay system are encrypted or protected in some other manner.
42. (new) The system of claim 33 further comprising means for generating a video and audio link between the production plant and the teleservice center.
43. (new) The system of claim 42 wherein the means for generating a video and audio link between the production plant and the teleservice center comprises a quick-acting key, which is arranged to open a direct data transmission link without any essential delay between the operator at the production plant and the staff at the teleservice center, as well as the means required for the data transmission link.